

CLAIMS

1. A dummy instrument for use in a simulator, the instrument comprising a control body with user manipulatable angulation control, an insertion tube and an umbilical extending from the control body, wherein in a real instrument corresponding to the one being simulated, at least one angulation cable would extend from the user manipulatable controls to the tip of the insertion tube such that movement of the angulation control changes the angulation of the tip, and wherein in the dummy medical instrument the angulation cable extends from the user manipulatable angulation control, and down the umbilical, the umbilical being releasably attached to a main unit, a motor within the instrument at the distal end of the umbilical to apply a variable force to the cable, and a position detector within the instrument to detect the angular position of the angulation control.

20 2. An instrument according to claim 1, wherein the position detector measures the rotation of the control.

25 3. An instrument according to claim 1, wherein the position detector measures the displacement of the cable.

4. An instrument according to claim 3, wherein the position detector is located at the distal end of the umbilical.

30 5. An instrument according to any preceding claim, wherein the instrument is provided with two pairs of angulation cables each pair forming a loop around the control body, and around a respective motor at the distal end of the umbilical.

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6. An instrument according to claim 5, wherein means are provided to retension the loop.

5 7. An instrument according to any one of the preceding claims, wherein a connector at the distal end of the umbilical is configured to provide a two-part release, allowing release to a partially released position in which the umbilical may be rotated relative to the base unit, but
10 in which the weight of the umbilical is still supported by the base unit, and a second fully released position in which the umbilical is completely releasable from the base unit.

15 8. An instrument according to any one of the preceding claims, wherein the position of the or each angulation cable is sensed by a combination of a low resolution absolute position detector and a higher resolution incremental encoder.

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